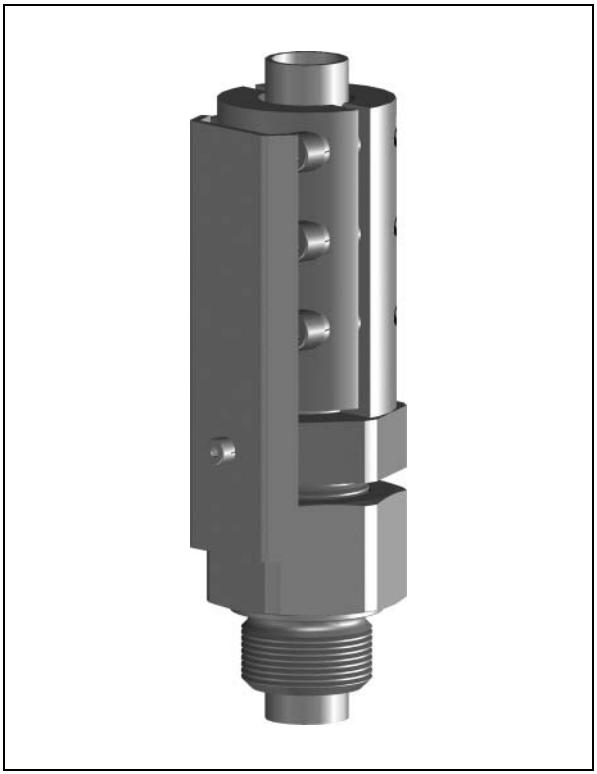
Operating Instructions

Lock fitting ARV-SG63.3
for VEGASWING 63
– pressure range -1 … 64 bar



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1 About this document

1.1 Function

This operating instructions manual has all the information you need for quick setup and safe operation of ARV-SG63.3. Please read this manual before you start setup.

1.2 Target group

This operating instructions manual is directed to trained personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbolism used

Information, tip, note
This symbol indicates helpful additional information.

Caution, warning, danger
This symbol informs you of a dangerous situation that could occur. Ignoring this cautionary note can impair the person and/or the instrument.

Ex applications
This symbol indicates special instructions for Ex applications.

- **List**
  The dot set in front indicates a list with no implied sequence.

→ **Action**
This arrow indicates a single action.

1 **Sequence**
Numbers set in front indicate successive steps in a procedure.

2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained, specialised personnel authorised by the operator. For safety and warranty reasons, any internal work on the instruments must be carried out only by personnel authorised by the manufacturer.

2.2 Appropriate use

ARV-SG63.3 is used for for infinite locking with tube extension.

Detailed information on the application range of ARV-SG63.3 is available in chapter Product description.

2.3 Warning about misuse

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

ARV-SG63.3 is a high-tech instrument requiring the strict observance of standard regulations and guidelines. The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standards (e.g. the VDE regulations in Germany) as well as all prevailing safety regulations and accident prevention rules.

2.5 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified acc. to DIN EN ISO 14001.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter "*Storage and transport*"
- Chapter "*Disposal*"

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3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- Lock fitting ARV-SG63.3 for VEGASWING 63 vibrating level switch
- Documentation
  - this operating instructions manual

3.2 Principle of operation

Area of application

ARV-SG63.3 is a pressure-tight threaded fitting up to 64 bar (928 psi) and can be used together with a level sensor in tube version (e.g. VEGASWING 63). The tube version of the sensor must have a diameter of 21.3 mm (ø 0.84 in).

ARV-SG63.3 cannot be used in coated tubes.

The wetted parts of ARV-SG63.3 can be manufactured wither of steel (316L) or Hastelloy C22 (2.4602).

Physical principle

With the lock fittings, sensors with tube extension can be fixed infinitely.

The pressure screw of the lock fitting compresses a graphite gasket consisting of three rings axially which is then pressed radially to the tube of the sensor. If mounted correctly, the graphite gasket encircles the tube tightly. The clamp protects the tube against sliding through. A locking bracket protects the terminal screws of the clamp against unauthorised or unintentional loosening.

3.3 Storage and transport

Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test acc. to DIN EN 24180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

Storage and transport temperature

- Storage and transport temperature see "*Supplement – Technical data – Ambient conditions*"
- Relative humidity 20 … 85 %

4 Mounting

4.1 General instructions

The note of the following general safety instructions:

- Dismount the lock fitting only in unpressurized condition
- Use only suitable graphite gasket rings (article no. 2.29849). Make sure that the graphite gasket rings are not damage. Damaged rings are no longer tight. If you are not sure, use new rings.
- Only use approved hexagon screws DIN 912 M6 x 25 of A4-70 acc. to AD leaflet W2. The corresponding spring rings B6 must be made of A4 acc. to DIN 7980.
- Before screwing in, grease the thread and support of the terminal screws with a suitable lubricant. The lubricant must be suitable for material compositions 316L/316L or 2.4602/316L (Hastelloy/StSt) and for a temperature range of -50 … +250°C, e.g. Varybond type NSS-16/7. When shipped, the threads are already lubricated.

4.2 Mounting procedure

The lock fitting is already premounted.

The numbers in brackets refer to the following illustration.

1 Loosen holding screw (6) and remove locking angle (4)

2 Screw mounting boss (7) with a resistant seal ring into the thread of the vessel and tighten the mounting boss (7) on the hexagon (SW 41 or SW 60)

3 Clean the connection tube of the sensor and the surfaces of the clamp (1) as well as the pressure screw (11) carefully and remove grease, oil and dirt. Insert the sensor into the lock fitting. Slide the tube into the requested position and hold it

4 Make sure that the sensor is in the the correct position (height). The height adjustment of the sensor determines also the switching point

5 Tighten pressure screw (11) with a torque of 70 ±10 Nm (51 ±7 lbf ft)

6 Turn pressure screw (11) clockwise until the hexagon surfaces of the pressure screw (11) and the mounting boss (7) corresponds (max. 1/6 turn)

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7 Tighten the terminal screws (3) alternately. Make sure that the gap between clamp and pressure screw is in parallel. Tighten the terminal screws up to a torque of 3 ±1 Nm (2.2 ±0.7 lbf ft).

Hence the clamp (1) is pressed against the tube and fixes the tube of the sensor in this position

8 Fasten the locking angle (4) with the hold screw (6) and the spring ring (5) laterally on the pressure screw (11)

Hence the pressure screw and the terminal screws are protected against unintentional loosening

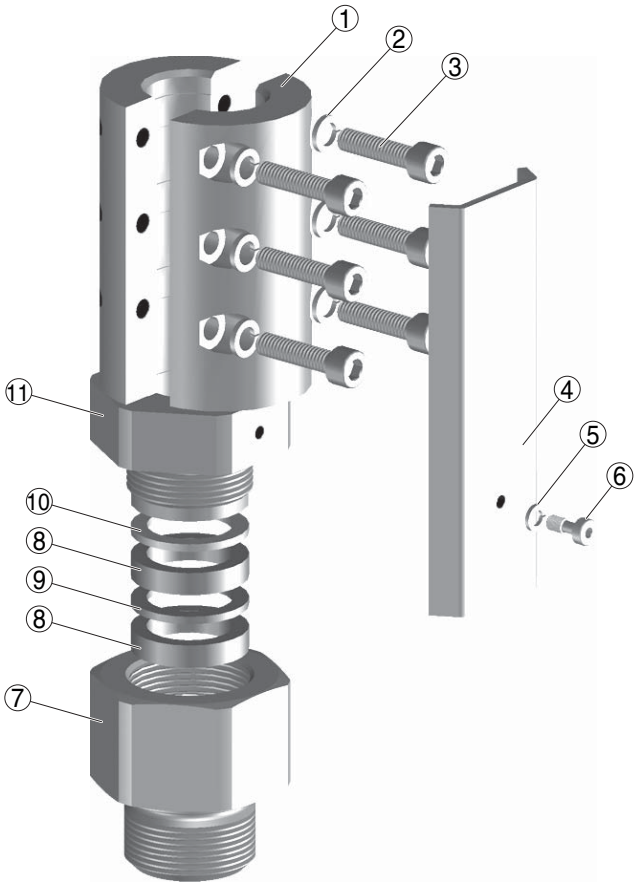

Fig. 1: Lock fitting ARV-SG63.3 - up to 64 bar (928 psi)

1 *Clamp*
2 *Spring ring B6*
3 *Terminal screw M6 x 25*
4 *Locking angle*
5 *Spring ring B4*
6 *Holding screw M4 x 10*
7 *Mounting boss*
8 *Gasket ring (article no. 2.29849)*
9 *Graphite gasket ring (article no. 2.29849)*
10 *Pressure ring*
11 *Pressure screw*

5 Maintenance and fault rectification

5.1 Maintenance

When used as directed in normal operation, lock fitting ARV-SG63.3 is completely maintenance-free.

5.2 Exchange seals

If you want to loosen the lock fitting, e.g. to change the switching point, you have to exchange the graphite gasket rings.

The numbers in brackets refer to the illustration under "*Mounting*".

Danger:
Before dismounting, make sure that the vessel is unpressurised

1 Loosen holding screw (6) and remove locking angle (4)

2 Loosen pressure screw (11)

3 Hold the tube of the sensor and loosen the terminal screws (3)

4 Pull the sensor out of the lock fitting

5 Unscrew the pressure screw (11) out of the mounting boss (7)

6 Screw the mounting boss (7) with a new resistant seal ring into the thread of the vessel and tighten the mounting boss (7) on the hexagon (SW 41 or SW 60)

7 Unpack the new gasket and graphite gasket rings. The graphite gasket ring (9) is thin; the gasket rings (8) are a little thicker and have a layer configuration.

Make sure that the rings are not damages. If you are not sure, use new rings (article no. 2.29849)

8 First of all place one of the new gasket rings (8) into the mounting boss (7). Then place the graphite gasket ring (9) on top. This is followed by the second gasket ring (8)

9 Place the pressure ring (10) of metal to the gasket rings

10 Screw the pressure screw (11) with a view turns from top into the mounting boss (7)

11 Clean the connection tube of the sensor and the surfaces of the clamp (1) as well as the pressure screw (11) carefully and remove grease, oil and dirt. Insert the sensor into the lock fitting. Slide the tube into the requested position and hold it

12 Make sure that the sensor is in the correct position (height). The height adjustment of the sensor determines also the switching point

13 Tighten pressure screw (11) with a torque of 70 ±10 Nm (51 ±7 lbf ft)

14 Turn pressure screw (11) clockwise until the hexagon surfaces of the pressure screw (11) and the mounting boss (7) corresponds (max. 1/6 turn)

15 Tighten the terminal screws (3) alternately. Make sure that the gap between clamp and pressure screw is in parallel. Tighten the terminal screws up to a torque of 3 ±1 Nm (2.2 ±0.7 lbf ft).

   Hence the clamp (1) is pressed against the tube and fixes the tube of the sensor in this position

16 Fasten the locking angle (4) with the hold screw (6) and the spring ring (5) laterally on the pressure screw (11)

   Hence the pressure screw and the terminal screws are protected against unintentional loosening

5.3 Instrument repair

If it is necessary to repair ARV-SG63.3, please send the instrument to the following address:

VEGA Grieshaber KG; Abteilung Reparatur; Am Hohenstein 113; 77761 Schiltach / Germany

6 Dismounting

6.1 Dismounting procedure

Note chapter "Mounting" and carry out the described steps in reverse order.

Warning:
If you want to remove the lock fitting for service or control purposes, make sure that the vessel is unpressurised.

If you proceed as follows, it is not necessary to readjust the switching point and the lock fittings must not be dismounted completely.

1 Switch off power supply of the sensor

2 Remove all connection cables

3 Loosen the mounting boss with a screwdriver

4 Remove the sensor together with the lock fitting

6.2 Disposal

ARV-SG63.3 consists of materials which can be recycled by specialised recycling companies. Mark the instrument as scrap and dispose of it according to government regulations.

Materials: see "*Technical data*"

If you cannot dispose of the instrument properly, please contact us about disposal methods or return.

7 Supplement

7.1 Technical data

General data

Material 316L corresponds to 1.4404 or 1.4435

Process fitting
- G1A or 1 NPT
- G1½A or 1½ NPT

Tube diameter of the sensor	ø 21.3 mm acc. to DIN 2463/2462 D4-T3 (ø 0.84 in)
Materials	
– Lock fitting	316L or Hastelloy C22 (2.4602)
– Graphite packing rings	graphite
– Seal	Klingersil C-4400[1)]
Terminal screws	Hexagon screws DIN 912 M6 x 25 material A4-70 acc. to AD leaflet W2; corresponding spring rings B6 materials A4 acc. to DIN 7980
Holding screw	Hexagon screw DIN 7964 M4 x 10 material A4-70; corresponding spring ring B4 material A4 acc. to DIN 7980
Torque	
– Terminal screws	3 ±1 Nm (2.2 ±0.7 lbf ft)
– Pressure screw	70 ±10 Nm (51 ±7 lbf ft)

Process conditions

Operating pressure 64 bar (928 psi)	Take note of the nominal pressure of the sensor. The lower permissible operating pressure is valid.
Product temperature	-50 … +250°C (-58 … +482°F)

Approvals[2)]

ARV-SG63.3 has the following approvals in conjunction with a corresponding level sensor.

1) not with thread NPT
2) Take note of the corresponding certificates of the sensor

ATEX ia	ATEX II 1G, 1/2G, 2G EEx ia IIC T6; ATEX II 1G, 1/2G EEx ia IIC T6
ATEX d	ATEX II 1/2G, 2G EEx d IIC T6
FM Zone 0	FM Zone 0, Division 1, intrinsic safe; FM Zone 0, Division 1, explosion safe
FM Zone 2	FM Zone 2, Division 2
Ship approvals	
Others	WHG

7.2 Dimensions

Lock fitting ARV-SG63.3 for VEGASWING 63

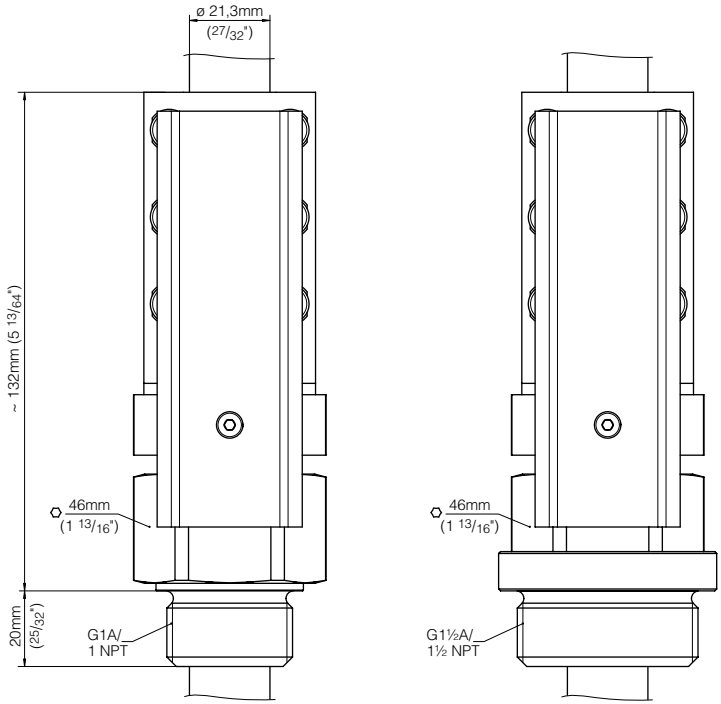

Fig. 2: Lock fitting ARV-SG63.3 up to 64 bar (928 psi) for VEGASWING 63

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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

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